

WHAT IS CLAIMED IS:

1. A method of preparing a cellulose-based fire retardant composition, comprising:
adding cellulose to water, thereby forming a solution;
5 adding ammonium hydroxide to the solution; and
subsequently adding diammonium phosphate to the solution, thereby forming a cellulose-based fire retardant composition.

10 2. A method according to Claim 1, further comprising heating the water prior to adding the cellulose.

15 3. A method according to Claim 1, further comprising heating the solution after at least one of adding the cellulose, adding the ammonium hydroxide, or adding the diammonium phosphate.

20 4. A method according to Claim 1, wherein said cellulose is selected from the group consisting of hydroxy ethyl cellulose, hydroxy propyl cellulose, hydroxy isopropyl cellulose, and a combination thereof.

5. A method according to Claim 1, wherein said cellulose is hydroxy ethyl cellulose.

25 6. A method according to Claim 1, wherein said cellulose is hydroxy butyl cellulose or hydroxy pentyl cellulose.

30 7. A method according to Claim 1, further comprising heating the cellulose and water solution to a temperature of about 60-70°C.

35 8. A method according to Claim 1, further comprising, after adding the diammonium phosphate, heating the solution to about 90°C.

9. A method of preparing a cellulose-based fire retardant composition, comprising adding cellulose powder to liquid ammonia at room temperature to form a solution; and subsequently adding diammonium phosphate to the solution thereby forming a cellulose-based fire-retardant composition.

10. A method according to Claim 9, further comprising heating the liquid ammonia.

11. A cellulose-based fire retardant, prepared by: adding hydroxyl cellulose powder to water, thereby forming a solution; heating the solution; adding ammonium hydroxide to the solution; and subsequently adding diammonium phosphate to the solution, thereby forming a cellulose-based fire-retardant liquid.

12. A method for providing fire retardant properties to a product, comprising:

coating a product with cellulose-based fire retardant liquid according to Claim 11; and

drying the coated product, thereby forming a fire-retardant coating.

13. A method according to Claim 12, wherein said product is selected from the group consisting of glass, metal, wood, paper, furniture, insulation, plywood, carpets, linen, and clothing.

14. A method for providing fire retardant properties to a product, comprising:

adding the cellulose-based fire retardant liquid according to Claim 11 to a slurry or suspension; and

evaporating a portion of water from said slurry or suspension, thereby forming a fire-retardant product.

15. A method according to Claim 14, wherein said slurry or suspension is selected from the group consisting of a wood, thread, carpet, rubber, mortar, concrete, or latex slurry or suspension.

16. A fire-retardant cellulosic polymer made according to the method of Claim 1.

17. A method of preparing a fire-retardant petroleum composition, comprising:

adding a petroleum polymer having a hydroxyl group to water, thereby forming a solution;

adding ammonium hydroxide to the solution; and

subsequently adding diammonium phosphate to the solution, thereby forming a fire retardant petroleum composition.

18. A method according to Claim 17, wherein said petroleum polymer is selected from the group consisting of polystyrene, polyethylene, polypropylene, acrylic polymers, polyurethanes, and/or combinations thereof.

19. A fire-retardant petroleum composition prepared according to Claim 17.

20. A cellulose-based fire retardant.

21. A cellulose-based fire retardant that is non-toxic.

22. A cellulose-based fire retardant that is thermally stable and does not ignite below about 3,500°F.

23. A cellulose-based fire retardant that is adhesive.

24. A cellulose-based fire retardant that is insoluble in water.